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(71)Applicant : NEC CORP

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(54) SEMICONDUCTOR DEVICE REINFORCED IN ITS RESISTANCE TO RADIATION

(57)Abstract:

PURPOSE: To reduce fixed positive charge accumulated in a gate oxide film and interfacial potential, and to improve a resistance to radiation, by forming a gate electrode in the manner such that a compression stress is applied on the boundary surface of a substrate side in the boundary region of the gate oxide film and an Si substrate.

CONSTITUTION: A gate electrode is formed by adjusting its film thickness and forming temperature, etc. in the manner in which compression stress is applied both on the side of a gate oxide film and on the side of an Si substrate in a boundary region of the gate oxide film and the Si substrate. As the result of this, even if ionization radiant rays make an incidence thereon, the accumulation of positive charge and generation of interfacial potential are suppressed, and resistance to radiation extremely increases. The range of optimum compression stress is estimated as $0.5 \sim 5 \times 10^7$ dyn/cm².


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